



Railroading in Pennsylvania

Pennsylvania Railroad (PRR) Station in Lancaster, c.1900. Engine 44 was built by the PRR Altoona shops in 1893, and was used to pull the paymaster's train. Landis Valley Museum

When the Industrial Revolution transformed America's economy from farming to manufacturing, it was the young railroad industry that propelled Pennsylvania to the forefront of mining, factory production, and transportation.

Abundant coal, iron ore, and timber (and later, oil) resources were useless without a way to send them to market via dependable, cheap, all-weather transportation. At the same time the westward settlement of the United States was underway, stimulating the demand for a better means of passenger travel.

At first, canals met both needs, and hundreds of miles of waterways were built throughout the state. But they were slow, and they froze in winter, halting

navigation for three or four months each year. In the 1820s and 1830s, railroads burst on the scene and, even in their primitive form, could operate year-round, and were faster than canals.

Not only did railroads extend into virtually every corner of Pennsylvania, they also became part of a way of life. Because the local depot was the doorstep to a community, the comings and goings of both notable people and common folk at the station were recorded and often published. People traveled by train for every imaginable reason—to go to and from work, to school, to the local courthouse, to leisure activities such as picnics and county fairs, to vacations, to expositions and world's fairs, to military ser-



The Stourbridge Lion—the first locomotive to run on rails in America, now in the Smithsonian Institution in Washington, D.C. Smithsonian Institution

vice and war, and to attend weddings, funerals, baptisms, church services, political conventions, and even public executions.

Besides serving local needs, trains whisked long-haul travelers and goods between the East Coast and the Midwest, and between Canada and Buffalo on the north and Baltimore and Washington on the south.

The earliest recorded railroad in Pennsylvania was a three-quarter-mile-long quarry tramway at Avondale, Delaware County, built in 1809–10 to connect with a boat landing on Ridley Creek. For the next twenty years, railroads were predominantly horse- or mule-powered, just like the canal boats that were then in vogue.

Railroads soon became more than local feeders. Alarmed by the rapidly growing mercantile dominance of New York and Baltimore, Philadelphians viewed those cities as a threat to its position as a hub for trade from the Midwest. They pushed state government to construct an interconnected rail-and-canal system, known as the Main Line of Public Works. It consisted of an 80-mile railroad from Philadelphia to Columbia on the Susquehanna River, a 172-mile canal from Columbia to Hollidaysburg at the base of Allegheny Mountain, the 36-mile Allegheny Portage Railroad (with 10 inclined planes) over the mountains to Johnstown, and a connection with another canal for the final one hundred miles to Pittsburgh. Completed in 1834, it required four and a

half days of travel to go from end to end. It was an engineering marvel of its day, and the section near Johnstown boasted the first railroad tunnel in America, the 901-foot-long Staple Bend Tunnel.

On August 8, 1829, the English-built Stourbridge Lion steam locomotive made a trial run at Honesdale, Pennsylvania, on the railroad of the Delaware & Hudson Canal Co., a major supplier of anthracite home heating fuel to New York City. Although it was too heavy for the crude tracks, the engine made history because it was the first full-sized commercially operated steam locomotive to run in the United States.

By 1830, the U.S. could boast only twenty-three miles of railroad track. Even so, American entrepreneurs—many of them in Pennsylvania—foresaw that that animal-powered trains would no longer be adequate. As a result, some began to build steam locomotives. In York, foundry owner Phineas Davis responded to the Baltimore & Ohio Railroad's offer of a \$4,000 prize to anyone who could build a coal-burning steam locomotive. Davis won the contest with his engine York, which he completed in July 1832.

On November 23, 1832, Old Ironsides, the first locomotive to be built by a predecessor of the Baldwin Locomotive Works, made a trial run on the Philadelphia, Germantown & Norristown Railroad. By the end of the nineteenth century, Baldwin was the world's largest builder and exporter of locomotives.

Eventually, tens of thousands of steam locomotives were built in Pennsylvania, either by manufacturers or by railroads themselves—at Altoona, Corry, Eddystone, Erie, Lancaster, Philadelphia, Pittsburgh, Reading, Renovo, Sayre, Scranton, and Wilkes-Barre. Freight and passenger cars were built at Altoona, Berwick, Butler, Enola, Greenville, Harrisburg, Hollidaysburg, Johnstown, McKees Rocks, Middletown, Milton, Pittsburgh, Reading, and York. Railroad bridges were fabricated at Ambridge and Phoenixville. Air-brake equipment was made at East Pittsburgh, and signals and signal control gear at Swissvale. At first, rail for railroad track was imported from England, but the high cost of doing so prompted the growth of local mills. Pennsylvania plants rolled rails of iron or steel at Danville, Steelton, Johnstown, and Pittsburgh.

Built first to meet purely local needs for mines and quarries, railroads soon crisscrossed Pennsylvania and interconnected with each other, transforming the state into a leader in steel making, coal mining, and manu-



facturing, and sharply reducing travel times. Soon people could travel between any two points in the state within several hours, or at least all on the same day. A Philadelphia-Pittsburgh trip now took only thirteen hours instead of the three and a half days.

When Pittsburgh was the jumping-off point for steamboats to the growing commercial centers of Cincinnati and New Orleans via the Ohio and Mississippi Rivers, railroads clamored to make that connection and others to the Midwest and West. The Philadelphia-based Pennsylvania Railroad (PRR) did so with its Philadelphia-Pittsburgh line, financed primarily by merchants and bankers to keep Philadelphia competitive for the east-west trade of the emerging nation. PRR became the nation's largest and most influential railroad by extending its lines to serve thirteen states and by laying or controlling twenty-six thousand miles of track. By 1874, the company connected New York, Newark, Trenton, Philadelphia, Atlantic City, Wilmington, Baltimore, Washington, and Norfolk with Harrisburg, Pittsburgh, Buffalo, Erie, Cleveland, Columbus, Cincinnati, Louisville, Indianapolis, Chicago, and St. Louis, and later added Detroit.

Because the predominant flow of travel and shipping was east-west, Pennsylvania was home to fewer

north-south railroads, and they were not as heavily used, but they nevertheless aided the flow of commerce throughout the state and the Northeast.

The people who built and ran the railroads were primarily of British and German stock—British because that is where railroads were invented, so it was a matter of importing the science and experience, and German because of one or both of two factors: the heritage of mechanical expertise in that European country, and the dense settlement of that group in the Pennsylvania Dutch (German) belt of southeastern Pennsylvania. The hardest jobs, including those of track laborers, were at first given to Irish immigrants. Later, these tasks were taken over by other ethnic groups, including Italians, Eastern Europeans, and African Americans. In the machine shops, where locomotives and cars were built and repaired, the foremen were primarily English, Scottish, Welsh, and German, while laborers were primarily Italian and Eastern European.

The few women who found jobs on railroads worked in telegraph offices or block towers. Women were uncommon in the labor force on railroads until World War I, when they were hired to fill in for men who joined the armed services. This pattern was

repeated in World War II, when women served in such nontraditional roles as crane operators, brake-men, and on-board ticket collectors. By that time, many women had been hired as office clerks and ticket agents, and women working in railroading jobs were no longer a novelty. Still, the high-profile jobs of locomotive engineer, fireman, and conductor remained all male into the 1970s.

Black railroaders served primarily in laboring positions or in roles such as dining-car chefs and waiters, station redcaps, or, most notably of all, as sleeping-car porters for the Pullman Company. Despite great opposition, under the leadership of A. Philip Randolph, they were able to force that company to recognize their union, a major advance in the national civil-rights movement.

The first military conflict in which trains played a strategic role was the Civil War, when the superiority of Northern railroads aided the Union victory. Not surprisingly, the railroads that were closest to the Mason-Dixon Line were those most severely sabotaged by Confederate troops. The Baltimore & Ohio, Northern Central, and Cumberland Valley were among the hardest hit, with bridges dynamited or burned, and rails twisted or heated and deformed. Railroads figured prominently in supplying troops and in removing wounded soldiers to hospitals.

Not long after the Civil War, the Great Railroad Strike of 1877 crippled many lines in the state. A labor walkout that started over pay cuts and doubling-up of some work boiled over into the largest civil violence ever to erupt in America up to that time. Mobs of citizens joined the trouble, and millions of dollars of damage was done. National Guard troops eventually restored order, but not before lives were lost and immense property damage took place.

Completion of the first transcontinental railroad to California in 1869 meant more business rolling over the several East-to-Midwest trunk lines that passed through Pennsylvania. The mileage of American railroads more than quintupled between 1860 and 1890—from 30,000 to almost 160,000. Pennsylvania railroad mileage peaked at 11,500 between 1915 and 1920.

Expansion came in other ways, too. Trains got longer and heavier, so larger locomotives and cars were built. Tracks had to be strengthened and wooden bridges replaced with iron or steel. Much of the iron and steel for these bridges and rails was made or fabricated in Pennsylvania.

Many landmark structures were built around this time, including the Broad Street Station (1881) and Reading Terminal (1893) in Philadelphia, Union Station and Pittsburgh & Lake Erie station in Pittsburgh (both 1901), and the Lackawanna Station in Scranton (1908). Bridges included the 301-foot-high Kinzua Viaduct near Kane (1882, rebuilt 1900), the Rockville Bridge over the Susquehanna River near Harrisburg, the world's longest concrete-and-stone-arch bridge (1902), and the concrete Tunkhannock Viaduct north of Scranton (1915).

Pennsylvania was also the source of innovation in railroading. In 1869 George Westinghouse devel-



During World War II, women took the place on the railroads of men who had gone to war.
Pennsylvania State Archives



The Erie Limited crossing the Starrucca Viaduct at Lanesboro, Pennsylvania. The stone viaduct, built in 1848, is 1,040 feet long and 110 feet high, and features 17 arches. PHMC

oped the air brake system and produced it at his Westinghouse Air Brake Company near Pittsburgh. The air brake is undoubtedly the single greatest safety innovation in railroading. Almost as important was the patent, in 1873, of the automatic safety knuckle coupler, designed by Eli Janney. Produced in Pittsburgh, it replaced the dangerous link-and-pin couplers that killed and maimed thousands of brakemen every year, and is still used today.

Railroads entered popular culture in many ways. The widely used slogan on highway grade-crossing warning signs, "Stop, Look, and Listen," was first used on the Reading Railroad in 1884. The Lackawanna Railroad originated popular advertising jingles that featured a fictional woman traveler, Miss Phoebe Snow, whose clothes always remained white because she traveled on the "Road of Anthracite." Hard coal burned more cleanly in steam engines than bituminous coal, creating less smoke and soot. In the days before air conditioning open windows in the cars admitted smoke, sparks, and cinders. Eventually, the railroad named its flagship New York-Scranton-Buffalo passenger flyer Phoebe Snow.

West of Philadelphia, "Main Line" still applies to the upscale communities that lie along the former Pennsylvania Railroad as far as Malvern, though the predecessor "Main Line of Public Works," from which the name springs, has been gone since 1857.

Improvements in safety, speed, comfort, and efficiency all came to the railroads in the twentieth century. More and faster luxury passenger trains began traveling through Pennsylvania, including the Broadway Limited, 20th Century Limited, Capitol Limited,

and Erie Limited (all New York-Chicago via different railroads) and the Congressional Limited and Royal Blue (both New York-Philadelphia-Washington).

Electricity was introduced for propulsion, as electric locomotives and electric commuter cars were designed and built to replace the dirty and less-efficient steam engines. Starting in 1914, the Pennsylvania Railroad and later the Reading electrified most of their commuter-train routes around Philadelphia. In the 1930s, PRR extended its electrification for longer-haul use as well—from New York to Washington and from Philadelphia to Harrisburg.

The B&O Railroad in 1931 operated the nation's first air-conditioned dining car on its routes through Pennsylvania. External styling of trains also took hold on several lines that offered colorful streamlined passenger trains, often with matching streamlined steam locomotives. The first diesel passenger locomotive in the East, No. 50, entered service on B&O's Royal Blue passenger train between New York, Philadelphia, and Washington, in 1935. The colorful streamlined trains of the 1930s and 1940s helped bring passengers back to the rails after the Great Depression had steeply cut ridership.

At the same time, railroads began to face other pressures. Competition arose to offer alternatives for shipping and traveling. The coming of the automobile and motor truck were followed in 1913 by the opening of the Lincoln Highway, the first transcontinental highway, which traversed Pennsylvania. Soon, state and local governments were building highways everywhere. Ironically, railroads supported the good-roads movement, believing that better farm-to-mar-

ket roads would improve their business as well. But the taxpayer-funded network of roads grew to be so pervasive that it siphoned off local short-haul business from the railroads.

World War II tested railroads as never before, and they carried troops, war materiel, and civilians on military travel in addition to their normal business.

The opening of the Pennsylvania Turnpike in 1940 further fueled the desire for a national network of high-speed limited-access roadways. After World War II, Congress passed a bill that created the forty-three thousand-mile national Interstate system of free highways, further subsidizing competing modes of transportation. The coming of commercial jet aircraft in the mid-1950s also spelled the end of the traditional overnight long-haul sleeper trains, because travelers could now cover in two hours what had taken them sixteen to twenty hours by rail.

As changing economic times brought mergers, bankruptcies, buyouts, and abandonments, the railroad map of Pennsylvania was redrawn again and again. Very few traditional railroad names from Pennsylvania's past remain today, but the industry has undergone a renewal and now carries more tonnage than at any time. America's first high-speed passenger trains operate through Philadelphia in the Northeast Corridor on their runs between Boston, New York, and Washington. Railroading in Pennsylvania enjoys a proud past and a solid future.

Text by Dan Cupper

FOR FURTHER READING

- Alexander, Edwin P. *The Pennsylvania Railroad, A Pictorial History*. New York: Bonanza Books, 1967.
- Archer, Robert F. *A History of the Lehigh Valley Railroad*. Forest Park, Ill.: Heimburger House Publishing Co., 1993.
- Brown, John K. *The Baldwin Locomotive Works 1831–1915*. Baltimore: Johns Hopkins University Press, 1995.
- Beaver, Roy C. *Bessemer & Lake Erie Railroad 1869–1969*. San Marino, Calif.: Golden West Books, 1969.
- Brignano, Mary, and Hax McCullough *The Search for Safety: A History of Railroad Signals and the People Who Made Them*. Pittsburgh: Union Switch & Signal Division, American Standard Inc., 1981.
- Cupper, Dan. *Crossroads of Commerce: The Pennsylvania Railroad Calendar Art of Grif Teller*. Mechanicsburg, Pa.: Stackpole Books, 2003.
- . *Railroad Museum of Pennsylvania: Pennsylvania Trail of History Guide*. Mechanicsburg, Pa.: Stackpole Books, 2002.
- Holton, James L. *The Reading Railroad: History of a Coal Age Empire Vol. 1* (nineteenth century) and *Vol. 2* (twentieth century). Laury's Station Pa.: Garrigues House Publishers, 1989 and 1992.
- Loeb, Betty Wagner. *Altoona and the Pennsylvania Railroad: Between a Roar and a Whimper*. Altoona, Pa.: Pennsylvania Railroad Technical and Historical Society, 1999.
- McLean, Harold *Pittsburgh & Lake Erie Railroad*. San Marino, Calif.: Golden West Books, 1980.
- Shaughnessy, Jim. *Delaware & Hudson*. Syracuse, N.Y.: Syracuse University Press, 1977.
- Treese, Loretta. *Railroads of Pennsylvania*. Mechanicsburg, Pa.: Stackpole Books, 2003.

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